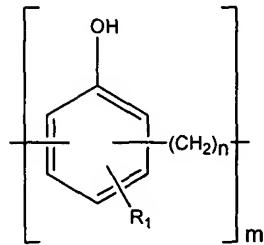


**CLAIMS**

1. A jet fuel composition comprising

- 5 (i) a jet fuel; and  
(ii) a compound of Formula I



Formula I

wherein m is at least 1;

wherein n is 0 or 1;

wherein when m is 1, n is 0;

wherein the or each R<sub>1</sub> is a hydrocarbyl group with the proviso that the or each R<sub>1</sub> is free

- 10 of carboxylic acid and carboxylic ester groups; and

wherein when m is 1, R<sub>1</sub> is a polymeric group comprising at least 12 carbon atoms.

2. A jet fuel composition according to claim 1 further comprising (iii) an antioxidant.

- 15 3. A jet fuel composition according to claim 1 or claim 2 further comprising (iv) a metal deactivator.

4. A jet fuel composition according to any one of claims 1, 2 or 3 wherein m is 1.

- 20 5. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a hydrocarbon group.

6. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a linear or branched alkyl group.

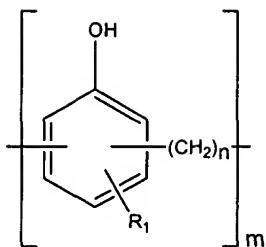
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7. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a C<sub>1</sub>-C<sub>200</sub> group.

8. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a

- 30 C<sub>10</sub>-C<sub>200</sub> group.

9. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a C<sub>40</sub>-C<sub>180</sub> group.
- 5 10. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a branched alkyl group.
11. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is a polyalkenyl group.
- 10 12. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is polyisobutene (PIB).
13. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> has a 15 molecular weight of from 200 to 2500.
14. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> has a molecular weight of 500 to 2500.
- 20 15. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> has a molecular weight of approximately 750.
16. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> has a molecular weight of approximately 1000.
- 25 17. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> has a molecular weight of approximately 2300.
18. A jet fuel composition according to any one of the preceding claims comprising 30
  - (i) a jet fuel
  - (ii) a compound of Formula I



Formula I

wherein m is 1 and n is 0;

wherein R<sub>1</sub> is a polyisobutene with a molecular weight of from 200 to 2500;

(iii) an antioxidant; and

(iv) a metal deactivator.

5

19. A jet fuel composition according to any one of claims 1, 2 or 3 wherein m is greater than 1.

20. A jet fuel composition according to claim 19 wherein R<sub>1</sub> is a hydrocarbon group.

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21. A jet fuel composition according to claim 19 or 20 wherein R<sub>1</sub> is a linear or branched alkyl group.

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22. A jet fuel composition according to any one of claims 19 to 21 wherein R<sub>1</sub> is a C<sub>1</sub>-C<sub>50</sub> group.

23. A jet fuel composition according to any one of claims 19 to 22 wherein R<sub>1</sub> is a C<sub>1</sub>-C<sub>25</sub> group.

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24. A jet fuel composition according to any one of claims 19 to 23 wherein R<sub>1</sub> is a C<sub>5</sub>-C<sub>15</sub> group.

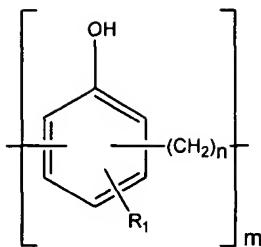
25. A jet fuel composition according to any one of claims 19 to 24 wherein m is at least 4.

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26. A jet fuel composition according to any one of claims 19 to 25 comprising

(i) a jet fuel

(ii) a compound of Formula I



Formula I

wherein m is greater than 1 and n is 1;

wherein each R<sub>1</sub> is a C<sub>1</sub>-C<sub>50</sub> hydrocarbyl group free of carboxylic acid and carboxylic ester groups.

(iii) an antioxidant; and

5 (iv) a metal deactivator.

27. A jet fuel composition according to any one of the preceding claims wherein R<sub>1</sub> is para substituted relative to the OH group.

10 28. A jet fuel composition according to any one of the preceding claims wherein the (CH<sub>2</sub>)<sub>n</sub> group is ortho substituted relative to the OH group.

29. A jet fuel composition according to any one of claims 2 to 28 wherein the antioxidant is a hindered phenol antioxidant.

15 30. A jet fuel composition according to claim 29 wherein the antioxidant is 2,6-di-t-butyl-4-methyl phenol (BHT).

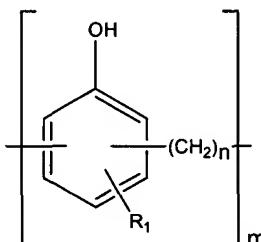
20 31. A jet fuel composition according to any one of claims 2 to 28 wherein the antioxidant is a phosphonate.

32. A jet fuel composition according to claim 31 wherein the antioxidant is dilauryl phosphonate.

25 33. A jet fuel composition according to any one of claims 3 to 32 wherein the metal deactivator is N,N'-disalicylidene 1,2-propanediamine.

34. A jet fuel composition according to any one of the preceding claims wherein the compound of Formula I is present in an amount of 50-200mg/L.

35. A jet fuel composition according to any one of the preceding claims wherein the compound of Formula I is present in an amount of 80-120mg/L.
36. A jet fuel composition according to any one of claims 2 to 35 wherein the antioxidant is present in an amount of 1-50mg/L.
37. A jet fuel composition according to claim 36 wherein the antioxidant is present in an amount of 1-30mg/L.
- 10 38. A jet fuel composition according to any one of claims 3 to 37 wherein the metal deactivator is present in an amount of 0.05 – 10mg/L.
39. A jet fuel composition according to claim 38 wherein the metal deactivator is present in an amount of 0.5 – 5mg/L.
- 15 40. A jet fuel composition according to any one of the preceding claims wherein the compound of Formula I is a compound of Formula II
- 
- Formula II
- wherein the or each R<sub>2</sub> is an optional hydrocarbyl group with the proviso that the or each R<sub>2</sub> is free of carboxylic acid and carboxylic ester groups; and wherein m, n and R<sub>1</sub> are as 20 defined in any one of the preceding claims.
41. Use of a compound of Formula I as defined in any one of the preceding claims for the inhibition of oxidation of a jet fuel composition as defined in any one of the preceding claims.
- 25 42. Use of a compound of Formula I as defined in any one of the preceding claims for the inhibition of deposit formation in a jet fuel composition as defined in any one of the preceding claims.

43. Use of a compound of Formula I as defined in any one of the preceding claims for the inhibition of particulate formation from the oxidation product(s) of a jet fuel composition as defined in any one of the preceding claims.
- 5 44. Use of a compound of Formula I as defined in any one of the preceding claims for the solubilisation of deposits and/or deposit precursors in a jet fuel composition as defined in any one of the preceding claims.
- 10 45. A method for inhibiting deposit formation in a jet fuel at a temperature of from 100 to 335°C, the method comprising combining with the jet fuel a compound of Formula I
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Formula I
- wherein m is at least 1;
- wherein n is 0 or 1;
- wherein when m is 1, n is 0;
- wherein the or each R<sub>1</sub> is a hydrocarbyl group with the proviso that the or each R<sub>1</sub> is free 15 of carboxylic acid and carboxylic ester groups; and
- wherein when m is 1, R<sub>1</sub> is a polymeric group comprising at least 12 carbon atoms.
- 20 46. A method according to claim 45 wherein the compound is as defined in any one of claims 2 to 40.
47. A jet fuel composition substantially as hereinbefore described with particular reference to any one of the Examples.
- 25 48. Use substantially as hereinbefore described with particular reference to any one of the Examples.
49. A method substantially as hereinbefore described with particular reference to any one of the Examples.